

**REMARKS**

Claim 4 was objected to as being dependent upon cancelled claim 1. Claim 4 has been amended to depend from claim 3.

The suggested correction to claim 8 has been included above.

**Claim Rejections - 35 U.S.C. 112**

Claims 9-12 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner has stated, "The claims are generally narrative and indefinite, failing to conform with current U.S. practice". These claims have all been amended and are believed not indefinite.

Claim 9, dependent upon claim 3, has been amended to define "the coarse aggregate of the concrete" which is what is being defined as enriched limestone waste as "the reduction of small size of grains". It is further stated, "Enrichment of this aggregate should be carried out by washing or screening or by a combination of washing and screening." Enriched limestone waste is well defined in the specification. The remainder of the claim defines the compressive strength of the resulting concrete using the defined coarse aggregate. An alternative definition has been deleted.

Claim 10 has been similarly amended.

Claim 11 included a considerable amount of supplemental material which did not

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further define the claimed concrete. This material has been deleted from the claim. The remainder of the claim, which depends from claim 3, defines the strength of the concrete in terms of defined characteristics according to the Portland Cement Association Engineering Bulletin EB 109P and American Building Code ACI 318. The specification also describes the derivation of the values for compressive strength, etc.

Claim 12, dependent upon claim 11, simply describes a series of values of modulus of rupture resulting in a corresponding series of values of compressive strength  $f_c$  based on the formulations of claim 11 and would appear to be sufficiently definite.

Claims 9-12 are now believed to be sufficiently definite and are properly allowable.

#### Claim Rejections - 35 U.S.C. §103

Claims 3-8 and 13-15 were rejected under 35 U.S.C. 103(a) as being unpatentable over Klco (U.S. Patent 4,836,856).

The Examiner has stated that Klco "discloses a composite concrete pavement having a subbase of limestone". It was also stated that, "it is standard engineering practice to choose one aggregate size based upon meeting design load criteria". It was further stated that

"the specified compressive strength and modulus of rupture would have been obvious to one of ordinary skill in the art at

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the time the invention was made to have used in order to obtain a pavement suitable for design loads".

The Klco patent defines a composition for stabilizing a non-concrete road base to minimize "washboarding, rutting, dusting, and general road grade maintenance". It describes a mixture of gypsum fines, aggregate, soil, and lignosulfate. Consequently, this patent is quite unrelated to the claimed concrete pavement.

Applicant's invention may be considered as a composite concrete pavement consisting of a surface layer of normal concrete with crushed hard rock as a coarse aggregate combined with a subbase of concrete wherein the aggregate consists of enriched limestone of certain stated sizes in stated proportions having certain specified compressive strength. The sizes stated are all classified as "limestone waste", which is smaller than about 9.5 mm in diameter. Just any mix of such limestone waste is not suitable, however, primarily because it would be expected to contain too much limestone finer than 2.36 mm. Thousands of tons of such "limestone waste" are piling up wherever limestone is quarried because it is considered unusable for concrete, primarily because concrete made with such "limestone waste" is considered to require an excessive amount of cement. If such limestone waste can be usefully employed in making concrete pavement, the cost of such pavement would be considerably reduced.

In answer to the Examiner's statement that, "it is standard engineering practice to choose an aggregate size based upon meeting design load criteria", applicant would refer to his specification and to the cited Portland Cement Association Engineering

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Bulletin EB 109P as defining standard practice. Such standard practice uses little or none of the "limestone waste" referred to above.

It is probably quite clear to the Examiner having read this far that the Klco patent has essentially nothing to do with applicant's claims. Klco simply describes a different kind of road base and not concrete pavement. Thus, practically no recitations of any of applicant's claims would read on Klco.

Referring to claim 3, for example, there is no indication in Klco of making concrete at all, such less with "small gains crushed limestone finer than 9.5 mm".

Claim 4 was considered to constitute "a process limitation that does not further limit the product claim". It is believed that at least the last recitation, "the physical properties of this coarse aggregate being in accordance with the requirements of ASTM C33" constitutes a further limitation relative to claim 3 and that claim 4 is properly allowable. Klco does not teach anything regarding "enriched limestone waste", so claim 4 clearly defines over this reference. Klco was stated as "deemed to meet the recitation of "enriched limestone waste". The definition of "enriched limestone waste" appears above. There is no indication in Klco of such material.

Claim 5 defines a further limitation as to sizes of the coarse aggregate of claim 3 and is clearly allowable. There is no suggestion in Klco of the recited size relationships of coarse aggregate.

Claim 6 also defines a specific limitation in the amount of the coarse aggregate not suggested by Klco..

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Claim 7 is similar to claim 6 but deals with a percentage of the total weight of aggregate finer than 1.18 mm. Again, there is no suggestion of such a limitation in Klco.

Claim 8 is similar to claim 7 and further recites "wherein the coarse aggregate is supplied from a bin in a concrete plant and that the amount of said coarse aggregate supplied . . . finer than 300  $\mu$ m (Sieve No. 50)) does not exceed about 3% of the total weight of aggregate. Reference is made to the "bin in a concrete plant" because of the deterioration in limestone sizes between the quarry and the bin because of handling, transportation and perhaps weather factors. Again, the subject matter of Klco is entirely different from that claimed and claim 8 clearly defines over this reference.

Claim 13 is an independent claim defining "a surface coarse . . . and a subbase wherein the coarse aggregate of the concrete is small grains crushed limestone finer than 9.5 mm, of which the amount of aggregate coarser than 4.75 mm exceeds about one-third of the total weight of aggregate". No such construction is suggested by Klco, which is really not concerned with pavement or concrete. Claim 13 clearly defines over Klco and is properly allowable.

Claim 14 further defines the aggregate of claim 13 as "enriched limestone waste". Again, the term is defined in the specification above. No such material is taught or suggested in Klco. Claim 14 is believed clearly allowable.

Claim 15 defines the pavement of claim 13 as characterized by a particular specified compressive strength and modulus of rupture (MR). Again, this characteristic is not mentioned in the patent to Klco, so claim 15 is believed allowable.

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The claims in the application are all believed to be properly allowable and favorable action is requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Robert C. Smith", written over a horizontal line.

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